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MAY 05 2003

TECH CENTER 1600/2900

1600

#30

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/407,806B

DATE: 04/30/2003

TIME: 11:55:44

Input Set : A:\09010-004005.txt

Output Set: N:\CRF4\04302003\I407806B.raw

4 <110> APPLICANT: Murphy, Dennis
5 Reid, John
7 <120> TITLE OF INVENTION: ALPHA GALACTOSIDASES AND METHODS FOR
8 MAKING AND USING THEM (Amended)
10 <130> FILE REFERENCE: 09010-004005
C--> 12 <140> CURRENT APPLICATION NUMBER: US/09/407,806B
C--> 13 <141> CURRENT FILING DATE: 2003-04-23
15 <150> PRIOR APPLICATION NUMBER: US 09/407,806
16 <151> PRIOR FILING DATE: 1999-09-28
18 <150> PRIOR APPLICATION NUMBER: US 08/613,220
19 <151> PRIOR FILING DATE: 1996-03-08
21 <160> NUMBER OF SEQ ID NOS: 4
23 <170> SOFTWARE: FastSEQ for Windows Version 4.0
25 <210> SEQ ID NO: 1
26 <211> LENGTH: 52
27 <212> TYPE: DNA
28 <213> ORGANISM: Artificial Sequence
30 <220> FEATURE:
31 <223> OTHER INFORMATION: synthetically generated oligonucleotide
33 <400> SEQUENCE: 1
34 ccgagaattc attaaagagg agaaattaac tatgagagcg ctcgctctttc ac 52
36 <210> SEQ ID NO: 2
37 <211> LENGTH: 31
38 <212> TYPE: DNA
39 <213> ORGANISM: Artificial Sequence
41 <220> FEATURE:
42 <223> OTHER INFORMATION: synthetically generated oligonucleotide
44 <400> SEQUENCE: 2
45 cggaagatct aggttcccca ttttcacccc t 31
47 <210> SEQ ID NO: 3
48 <211> LENGTH: 1095
49 <212> TYPE: DNA
50 <213> ORGANISM: Thermococcus alcaliphilus
52 <400> SEQUENCE: 3
53 ttgagagcgc tcgtctttca cggcaacctc cagtatgccg aaatcccaaa gagcgaaatc 60
54 ccaaagggtca tagagaaggc atacatccca gtcacgaga cactgattaa agaagaaatt 120
55 ccttttgggc tcaacataac gggctatacc ttaaagttcc tccgaagga tattatagac 180
56 ctcgttaaag ggggcatcgc gagtacctg atagagataa tcggaacgag ctacacgcac 240
57 gcaatactcc ccctcctgcc gcttagcaga gtagaagcac aagttcagag agatagggaa 300
58 gttaaggaag agctcttcga ggtttctcca aagggattct ggctgccaga gctcgcctat 360
59 gacccgataa tccctgccat actgaaggac aacggttatg agtatctatt cgccgacggg 420
60 gaggcgatgc ttttctcagc tcattctcaac tcggcgataa agccaattaa accgctctat 480
61 ccacacctta taaaggccca aagggaagcg cgcttttaggt acatcagcta tctccttggg 540

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```

62 ctcagggagc ttaggaaggc gataaagctc gtttttgaag gtaaggtaac gctaaaggca      600
63 gtcaaagaca tcgaagccgt acccgtttgg gtggccgtga acacggctgt aatgctcggc      660
64 atcggaaggc ttcctcttat gaatcctaag aaagtggcga gctggataga ggacaaggac      720
65 aacattcttc tatacggcac cgatatagag ttcattggct atagggacat tgcaggctac      780
66 agaatgagtg ttgagggatt attagagggt atagacgagc tcaactcgga actgtgcctt      840
67 ccctcagagc tgaagcacag tggaaggag ctctacttac ggacttcgag ttgggcacca      900
68 gataagagct tgaggatatg gagagaggac gaagggaacg caagacttaa tatgctgtcc      960
69 tacaatatga ggggcgaact cgccttttta gccgagaaca gcgatgcaag gggatgggag     1020
70 cccctccctg agaggaggct ggatgccttc cgggcgatat ataacgattg gaggggtgaa     1080
71 aatggggaac cttag                                     1095

73 <210> SEQ ID NO: 4
74 <211> LENGTH: 364
75 <212> TYPE: PRT
76 <213> ORGANISM: Thermococcus alcaliphilus
78 <400> SEQUENCE: 4
79 Leu Arg Ala Leu Val Phe His Gly Asn Leu Gln Tyr Ala Glu Ile Pro
80 1          5          10          15
81 Lys Ser Glu Ile Pro Lys Val Ile Glu Lys Ala Tyr Ile Pro Val Ile
82          20          25          30
83 Glu Thr Leu Ile Lys Glu Glu Ile Pro Phe Gly Leu Asn Ile Thr Gly
84          35          40          45
85 Tyr Thr Leu Lys Phe Leu Pro Lys Asp Ile Ile Asp Leu Val Lys Gly
86          50          55          60
87 Gly Ile Ala Ser Asp Leu Ile Glu Ile Ile Gly Thr Ser Tyr Thr His
88 65          70          75          80
89 Ala Ile Leu Pro Leu Leu Pro Leu Ser Arg Val Glu Ala Gln Val Gln
90          85          90          95
91 Arg Asp Arg Glu Val Lys Glu Glu Leu Phe Glu Val Ser Pro Lys Gly
92          100          105          110
93 Phe Trp Leu Pro Glu Leu Ala Tyr Asp Pro Ile Ile Pro Ala Ile Leu
94          115          120          125
95 Lys Asp Asn Gly Tyr Glu Tyr Leu Phe Ala Asp Gly Glu Ala Met Leu
96          130          135          140
97 Phe Ser Ala His Leu Asn Ser Ala Ile Lys Pro Ile Lys Pro Leu Tyr
98 145          150          155          160
99 Pro His Leu Ile Lys Ala Gln Arg Glu Lys Arg Phe Arg Tyr Ile Ser
100          165          170          175
101 Tyr Leu Leu Gly Leu Arg Glu Leu Arg Lys Ala Ile Lys Leu Val Phe
102          180          185          190
103 Glu Gly Lys Val Thr Leu Lys Ala Val Lys Asp Ile Glu Ala Val Pro
104          195          200          205
105 Val Trp Val Ala Val Asn Thr Ala Val Met Leu Gly Ile Gly Arg Leu
106          210          215          220
107 Pro Leu Met Asn Pro Lys Lys Val Ala Ser Trp Ile Glu Asp Lys Asp
108 225          230          235          240
109 Asn Ile Leu Leu Tyr Gly Thr Asp Ile Glu Phe Ile Gly Tyr Arg Asp
110          245          250          255
111 Ile Ala Gly Tyr Arg Met Ser Val Glu Gly Leu Leu Glu Val Ile Asp
112          260          265          270

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```

113 Glu Leu Asn Ser Glu Leu Cys Leu Pro Ser Glu Leu Lys His Ser Gly
114          275          280          285
115 Arg Glu Leu Tyr Leu Arg Thr Ser Ser Trp Ala Pro Asp Lys Ser Leu
116      290          295          300
117 Arg Ile Trp Arg Glu Asp Glu Gly Asn Ala Arg Leu Asn Met Leu Ser
118 305          310          315          320
119 Tyr Asn Met Arg Gly Glu Leu Ala Phe Leu Ala Glu Asn Ser Asp Ala
120          325          330          335
121 Arg Gly Trp Glu Pro Leu Pro Glu Arg Arg Leu Asp Ala Phe Arg Ala
122          340          345          350
123 Ile Tyr Asn Asp Trp Arg Gly Glu Asn Gly Glu Pro
124          355          360

```

VERIFICATION SUMMARY

DATE: 04/30/2003

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Input Set : A:\09010-004005.txt

Output Set: N:\CRF4\04302003\I407806B.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application Number

L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date